

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

Confirmation No.: 2461

De KROON et al

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Serial No. 10/540,704

Group: 1794

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Examiner: Freeman

For: **PROCESS FOR APPLYING A LAYER OF BRANCHED POLYAMIDE TO A  
SUBSTRATE**

\* \* \* \* \*

December 22, 2008

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 CFR §1.132**

Sir:

Pursuant to 37 CFR §1.132, the undersigned, Jou de KROON, hereby  
declares and states that:

1. The following experiments were conducted under my direction and control:

**Experimental Set-Up**

Akulon F 126-C (relative viscosity 2.65) was used as the non-branched polyamide. As a branched polyamide, use was made of a polyamide made according to the process of WO 00/35992, from 97 parts by weight of caprolactam, 0.62 part by weight of bis-hexamethylene-triamine, 0.42 part by weight of adipic acid and 0.71 part by weight of benzoic acid with a relative viscosity (measured in a 1 mass% solution in 90% formic acid at 25°C) of 2.80. This polymer was post-condensed in the solid phase to a relative viscosity of 2.95 and provided with nucleating agent and lubricant.

Kraft paper (800 mm width, 60 g/m<sup>2</sup>) was used as substrate and was coated, on a paper coating machine Er-We-Pa Davis Standard, with a coextruded 2-layer film consisting of 8 g/m<sup>2</sup> of polyamide and 8 g/m<sup>2</sup> maleic anhydride grafted. The so obtained laminate consisted of a Kraft paper layer, an intermediate polyamide layer and a maleic anhydride grafted polyethylene layer.

Temperature settings of the tie resin extruder were 200 - 230 - 255 - 280 - 280, adapter 280 °C and the temperature settings of the PA6 extruder were: 260 - 290 - 290 - 290 - 290°C, adapter 290 °C. The feed block and die temperature was 290°C.

In order to quantify thickness distribution, web stability was measured for all laminates. The web is defined here as the distance from the extruder die to the substrate, which is about 350 mm for the production of laminates according to the set-up used. The higher the web stability, the more uniform the thickness distribution of the layers on the substrate.

#### Example 1

The branched polyamide as described above was used. The desired thickness of the resulting laminate was 16 grams per square meter. At a production rate of 200 m/min a web stability of 6 mm (width fluctuation on each side of the web) was observed. After increasing the production rate to 600 m/min, the web stability remained virtually the same.

#### Comparative Example 1

The non-branched polyamide as described above was used. The desired thickness of the resulting laminate was 16 grams per square meter. This resulted in a web-stability of 8 mm at a production rate of 200 m/min.

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Increasing the production rate proved to be impossible as no stable laminate could be formed.

2. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully Submitted,

8-1-2009  
Date Signed

A handwritten signature in dark ink, appearing to read 'De Kroon', is written over a horizontal line.